

# Digital Strategy



The National Library of Australia acknowledges Australia's First Nations Peoples  
– the First Australians – as the Traditional Owners and Custodians of this land  
and gives respect to the Elders – past and present – and through them to all  
Australian Aboriginal and Torres Strait Islander people

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## Executive Summary

Australian society is in the midst of a major digital transition that fundamentally changes the ways in which collecting and memory institutions must operate. The digital deluge – the sheer volume and dynamic nature of content documenting our society, and the need to make sense of, capture, securely store and provide meaningful access to it – is a significant challenge for the Library.

The Library has a track record of delivering innovative technology-based solutions. However, while the Library has successfully scaled low-cost digital services for decades, available resources are insufficient to sustain digital operations for the Library and its partners.

For the Library to continue to deliver its legislated mandate to collect and preserve Australia's documentary heritage, it will need significant investment. Appropriations do not cover the operations and maintenance of a large application portfolio comprising dated systems, limiting future innovation and the ability to capture today what matters tomorrow.

For the Library to continue to provide world leading digital services like Trove to millions of Australians, it will need significant investment. Our collaboration role is unique amongst cultural institutions and the outcomes of national digital infrastructure have been profound for Australia's cultural landscape with over 90% of all traffic to NCI websites coming from Trove. While Trove provides access to the content of over 900 partners across Australia and is one of the top 10 most used federal government websites, Trove does not have ongoing Government funding outside of the Library's base appropriations.

The screenshot displays the Trove website interface. At the top, the Trove logo is centered, with navigation links for ABOUT, HELP, NEWS, PARTNERS, SIGN UP, and LOGIN on the right. Below the logo is a horizontal menu with links: Explore, Categories, Community, Research, and First Australians. A large purple banner features the text "Search. Uncover. Australia" and a search bar with the placeholder "Search Trove...". To the right of the search bar are links for "All categories" and "Advanced Search". Below the banner, a message states: "Trove is a collaboration between the National Library of Australia and hundreds of Partner organisations around Australia. See our Partners".

The main content area is titled "TROVE SPOTLIGHT" and features a large image of the front page of "The Leader" newspaper, dated Wednesday, October 12, 1904. The newspaper headline reads "Published in Orange and Millthorpe, EVERY MORN". Below the headline, there are several articles and advertisements, including "Seven million milestones" and "The Extra Quality of Cold Water". To the right of the newspaper image, there are three smaller images and text boxes:

- Text correct vintage knitting patterns**: HELP US TEXT CORRECT VINTAGE KNITTING PATTERNS IN MAGAZINES, BOOKS AND NEWSPAPERS
- Just your type**: VOLUNTEERS SOUGHT TO OPEN THE BOOKS ON AUSTRALIAN HISTORY
- Celebrate Mabo Day**: RESEARCH THE LIFE AND LEGACY OF EDDIE KOIKI MABO IN TROVE

Below these, a text box states: "This year, volunteer text corrector John Warren reached a huge milestone - 7 million lines of text corrected!" with a "Read more" link.

At the bottom, a section titled "DISCOVER MORE ON TROVE" features four circular icons representing different types of content:

- Investigate your family history**
- Read and correct news articles**
- Discover what's new and coming soon**
- Find something fun, interesting or quirky**



This document outlines an adaptive Digital Strategy which reflects what the Library can achieve with current funding, and what can be achieved if the Library is funded to continue its national leadership and collaboration role.

Please refer to the accompanying infographic outlining the strategic priorities, service profile and national impact that can be achieved in low, medium and high funding scenarios.

## Context

The Library exists in an environment that is characterised by rapid change in several areas. Broad national and global trends impacting the Library, outlined in the Library's Corporate Plan, are:

- a COVID world
- global and national economy
- public expectations of institutions
- changing Australian society
- technology expansion and disruption, and
- intensified competition for skilled workers.

From these trends, we have identified significant drivers that have influenced this Digital Strategy.

### Cybersecurity

Robust cybersecurity capabilities are needed to mitigate the increasing risk of cyberattacks and to meet the Australian Government's vision to create a more secure online world for Australians. The sophistication and scale of cyber threats continues to increase, increasing the risk to our digital collection and technology operations.

### Meeting citizen needs

Australia's increasingly culturally and linguistically diverse community has a deepening appetite for accessible research and discussion about individual, community and national identity. The community has enthusiastically adopted digital publishing platforms that both enhance and challenge the Library's ability to collect documentary heritage.

Our users' digital capability has also increased with their demand for sophisticated digital services. Library users have increasingly high expectations for engaging with library collections and services online. Meeting this expectation will be challenging. The Library has developed a significant and loyal user base through Trove and its other digital services. These services will need to be sustained and developed to remain relevant, useful, and to continue meeting the needs of a broader cross-section of the Australian community.

### Technology

Rapidly evolving consumer, business and enterprise technology presents an ongoing challenge.

**Adaption:** The Library must continue to design and maintain a contemporary technology environment, considering corporate priorities, resource constraints and risk appetite.

**Artificial Intelligence and Machine Learning:** Cognitive technologies are increasingly being used to solve business problems and augment staff capabilities and capacity. AI can support important Library needs including: automating business processes, gaining insight through data analysis, and engaging with customers and employees. Commercial and commodity AI services can be applied to a range of Library use cases.

**Cloud:** The shift to cloud-based technologies is accelerating. Cloud-based infrastructure, platform and software-as-a-service commercial options offer benefits for the Library's core business and corporate systems, especially with innovation and agility.

**Interoperability:** The Library must ensure the products and services are interoperable and flexible within the Library's ecosystem, with external cloud providers and other partners in the research, education, and cultural sector. These Library's enterprise architecture must also comply with Australian government architectures other relevant industry standards.

### **Meeting Library needs**

Library staffing reductions and the growth in the range and volume of material to be collected and managed, increases reliance on technology. Internal library systems used for day-to-day workflows and knowledge sharing need to be simple, reduce process friction, and leverage improved staff digital capabilities to maximise productivity.

### **Resourcing**

The Library's reach and impact is based on its technology. Without a significant increase in resourcing, the Library will no longer be able to provide world leading digital services to Australians or fulfil its leadership position amongst Australian cultural institutions.

The Library's base appropriations have been declining for a number of years. In addition, the Library cannot fund digital operations by taking from resources needed to run its traditional and physical operations. The Library has received additional Government funding for its digital operations in each of the last 5 years. This funding has enabled the Library to sustain digital services. However, short-term funding does not support the medium or longer-term needs.

### **Digital Workforce**

Digital, data and specialist skills required by the Library are in high demand, and the Library faces very significant challenges attracting and retaining talent.



## Our Vision

Build on our strong foundations to deliver a secure, sustainable, innovative, and ambitious digital culture platform for the nation.

## Our Principles

**The Library's funding scenario beyond 2023, including the level of support for major digital operations, is unclear. In addition, unprecedented rates of change in technology, culture and citizen expectations are creating more short- and long-term uncertainty.**

The Library will respond to these challenges by addressing immediate needs while developing capability for the longer term. The following principles will be used to support decision making in this environment.

**Collecting comes first.** We will prioritise investment that supports our first responsibility to Collect, ahead of our Connect and Collaborate roles; material of national importance must be captured for future citizens before it is lost forever.

**We focus on citizens.** We will implement a data-driven and audience-centric engagement strategy, to the extent that our resources allow.

**Partnering with co-investment is our preferred model.** The Library will be inclusive, engaging and collaborative, with ideas and insights contributed from anyone inside or outside the organisation. We will advocate and pursue shared solutions and infrastructure if a shared investment model can be agreed upon.

**We will adopt an adaptive strategy to enable us to respond to multiple investment scenarios.** We will continue to build enabling capability so that we can scale up if investment for shared digital infrastructure is made available. We will therefore focus our available digital resources on:

- ensuring all digital investments deliver flexible and cloud-ready outcomes
- critical capabilities needed to perform core Library functions
- advocating for sustainable funding to continue delivering against the Library's Connect and Collaboration pillars.

**Ensure low-cost, sustainable operations. We will achieve maximum return on available investment by:**

- having the smallest and simplest possible application portfolio
- managing shared capabilities centrally, to reduce costs and ensure consistent service levels
- develop bespoke solutions for selected digital library services only, or where the market cannot meet requirements.

**Use agile and lightweight processes. We will speed up delivery by:**

- deploying minimum viable governance approaches to projects and operations
- adopting fit-for-purpose methodologies; waterfall project management only when required
- spending less time planning and refining, and more on execution and delivery.

**Balance security and availability by mitigating critical risks and minimising incident impacts.**

## Our Strategic Priorities

The Library's vision is to connect all Australians with national collections, enriching our understanding about who we are and our place in the world. The library leads the nation in reaching the full breadth of the Australian community; collects and preserves published, written, oral visual and digital heritage; and provides access to the collections of hundreds of partners.

While the Library's mission has long been to collect, connect and collaborate, the ways in which we carry out that mission have changed dramatically. The Library must build strong foundations to maximise the nation's return on its investment in the Library. Increasingly those foundations are digital. Since the 1990s the Library has successfully operated digital services by digitising collections for online access and now leads the nation in reaching the full breadth of the Australian community.

To continue delivering the Library's vision, we now aim to deliver next-generation digital capability to sustain and grow our online operations, to offer high-value services to other institutions and to ensure that our technology infrastructure and capability is responsive, reliable, sustainable, trusted and secure.

To achieve success across the Library's Collect, Connect, Collaborate and Capability pillars, a set of business capabilities – what the Library does and what it will need to do differently to operate in a rapidly changing environment – have been identified.

### Business Capabilities

- 1. Process Automation:** Deliver the tools, systems and capabilities to efficiently and effectively execute Library functions and processes.
- 2. Digital Collecting:** Use novel approaches to collecting to social media and new digital formats.
- 3. Cognitive Technologies:** Use AI to support important Library needs by augmenting a smaller collecting and collection management workforce, gaining insight through data analysis, and improving citizen engagement.
- 4. Audience-Centric Digital Engagement:** Meet the citizen expectations and engage our audiences through data driven insights, decision making and personalisation.
- 5. Sustainable Digital Infrastructure:** Continue to design, develop, and run low-cost digital library services that support a growing and diverse digital collection.
- 6. Scalable Digital Infrastructure:** Leverage new technology and additional funding injections as they become available to improve services and scale.
- 7. Cybersecurity Risk Mitigation:** Reduce cybersecurity incidents, minimise the impact of these events, and recover promptly from compromise.
- 8. Redundant and Resilient Infrastructure:** Protect the digital collection, infrastructure and services from cybersecurity threats, physical risks and acts of nature.
- 9. Digital Workplace Digital Workforce:** Delivering the tools, systems and capabilities to efficiently and effectively execute Library functions and processes.

A set of 9 strategic priorities, outlining the approach and initiatives to develop, create or acquire the business capabilities required to implement the digital strategy, follow.



# Collect

## 1. Streamline collection workflows for increased collecting efficiency



### Our Approach

The Library will streamline our collection workflows and automate high-volume and repetitive workflow steps. While this initiative may implement AI (which is covered separately) its primary aim is to implement efficient processes and systems rather than leverage ground-breaking technology.

### Our Initiatives

We will replace our Library Management System with a next-generation library services platform.

We will implement workflow automation to increase collecting capabilities.

We will review system integrations to build workflow efficiency.

## 2. Collect new and emerging digital material and formats



### Our Approach

The Library will increasingly focus on collecting digital and online content. To support this, we will invest in new two digital collecting capabilities: one for large scale collecting of websites; and another for collecting of social media.

### Our Initiatives

We will use public data sources and browser-automation to improve the quality and scale of contemporary web collecting and explore alternatives to web crawling for collecting social media content.

Our web archiving infrastructure will be replaced and serve as a platform for new ways of collecting.

## 3. Use AI to augment the Library's collecting workforce



### Our Approach

We will identify Artificial Intelligence and Machine Learning services to integrate with our collection description and management processes.

### Our Initiatives

Use mature commodity AI and ML for low-risk high-value workflow steps and low-risk collections and use cases.

Improve our digital collection management system support for AI and ML processing.

## Connect

### 4. Support for a digital-first data-driven engagement strategy supporting better services to contemporary Australian communities



#### Audience-Centric Digital Engagement

##### Our Approach

Ensure Library outputs deliver intended business benefits and outcomes, using data driven insights and decision making. This is key to supporting the Library's engagement initiatives in measuring and tracking their success.

##### Our Initiatives

Develop KPI reporting processes and an enterprise analytics platform to support data driven decision making.

## Collaborate

### 5. Ensure continuation of low-cost, fit-for-purpose infrastructure, digitisation systems, National edeposit and Trove



#### Sustainable Digital Infrastructure

##### Our Approach

Through new investment in our Enterprise Architecture capability and Application Portfolio Management processes, we will architect to increase the sustainability of Trove and other key public digital services used by over 25 million Australians each year.

##### Our Initiatives

Create a transition roadmap for decoupling applications into loosely integrated services that operate in the cloud.

Identify and reduce functional duplication across our applications.

Identify and decommission low-value applications and divest application portfolio functions.

## 6. Seek funding to build next-generation shared NCI Infrastructure



### Scalable Digital Infrastructure

#### Our Approach

The Library and Australia's National Collecting Institutions will continue to explore a shared cloud-based solution to digitisation, digital collection storage and access needs. We will seek funding to design and develop infrastructure and systems for a future joint NCI digital platform.

#### Our Initiatives

Decouple our applications using contemporary scalable practices.

Decompose our systems and applications into services aligned to business capability using composable architecture and other contemporary practices.

Implement APIs managed through an API management platform to further support scalability and integration.

If additional funding is provided, we will apply these approaches at scale to facilitate a national shared digital platform.

## Capability

## 7. Lift cybersecurity maturity



### Cybersecurity Risk Mitigation

#### Our Approach

Reduce cybersecurity incidents, minimise the impact of cybersecurity events, and recover promptly from compromises.

#### Our Initiatives

Implement Risk Based approach to tackling Cybersecurity and Internal Audit Recommendations.

Focus on improving Essential 8 compliance.

## 8. Operationalise digital business continuity and disaster recovery infrastructure



### Redundant and Resilient Infrastructure

#### Our Approach

In the event of a Library disaster or incident impacting digital infrastructure at Parkes, resume digital operations of critical systems from the disaster recovery site within Maximum Allowable Outage parameters.

#### Our Initiatives

Deliver offsite disaster recovery solution to cover priority applications.

## 9. Uplift digital and data capabilities, develop communities of practice, and deliver self-service data and analytics



### Digital Workplace Digital Workforce

#### Our Approach

Reduce system and process friction and replace with fast, easy access to corporate data, knowledge and information and support collaborative ways of working with anytime/anywhere access.

#### Our Initiatives

Implement an integrated collaboration platform, enterprise content and document management system and intranet and social network.

Deliver a new self-serve KPI and analytics platform.

Roll-out contemporary, mobile and digital workplace tools for staff.

## How We Will Deliver

This Digital Strategy lays out what the Library needs to do to continue to serve the millions of Australians that use our services regularly. We will rely on governance initiatives to optimise the prioritisation, management and delivery of digital services. We have three key strategies to deliver the right mix of direction, oversight and capability. The extent to which we can deliver the strategy will depend on additional funding. Without additional investment only a limited number of our strategic priorities will be delivered.

### 1. Governance

We will continue to strengthen our digital governance processes by implementing fit-for-purpose processes and oversight.

We will develop and implement a product management operating model and supporting service catalogue. These initiatives will mature the digital service delivery model, allowing for better prioritisation, planning, and resource management across our digital portfolio.

### 2. Enterprise Architecture

We will leverage our developing Enterprise Architecture capability to maximise our technology investment to ensure its cost-effective alignment with business priorities. The Library will continue to develop and follow a Technology Roadmap. This roadmap will use industry standards and platforms, be consistent with whole-of-government enterprise architecture frameworks and apply composable architecture ideas. We will develop a continuous improvement approach to technology road mapping. Our Enterprise Architecture capability will prioritise decision making based on whole-of-library benefit.

### 3. People and Culture

#### Developing competencies to meet the demands of emerging technologies

Artificial Intelligence and Machine Learning, along with other emerging technologies, are key to the Library's objectives to deliver new capabilities and efficiency in collecting, describing and more effectively discovering collections. Acquiring and developing AI and ML skills to support innovation is a challenge for organisations. Beyond a skilled workforce to design and develop systems based on these emerging technologies, the Library's broader workforce will need to develop new competencies and ways of working in response.

### **Equip and empower all Library staff to build digital capabilities and products**

We have identified enabling changes, such as a re-focus on forming and supporting multidisciplinary digital and business teams, to support the development of these new competencies. We have a track record of strong, integrated teams delivering value through digital projects. These multidisciplinary teams will blend technology and domain expertise to align business outcomes and enabling technology. With support from Library management, and other key technical teams, the Library will be better placed to grow and identify the competencies it needs to support.

### **Attracting and retaining skilled staff**

The Library faces increased competition for attracting and retaining digital talent. The market for digital staff is very competitive and the Library faces challenges offering competitive conditions and salary against consultancies, the contractor market, and other larger organisations.

We have identified supporting initiatives to offset some of these challenges. The Library presents a compelling choice for prospective employees with its vision and mission, its unique collection, its dedicated and passionate workforce, and its track record of digital innovation. Will will continue to leverage these attributes, enabling staff to connect their work to the Library's purpose.

### **Data and analytics literacy**

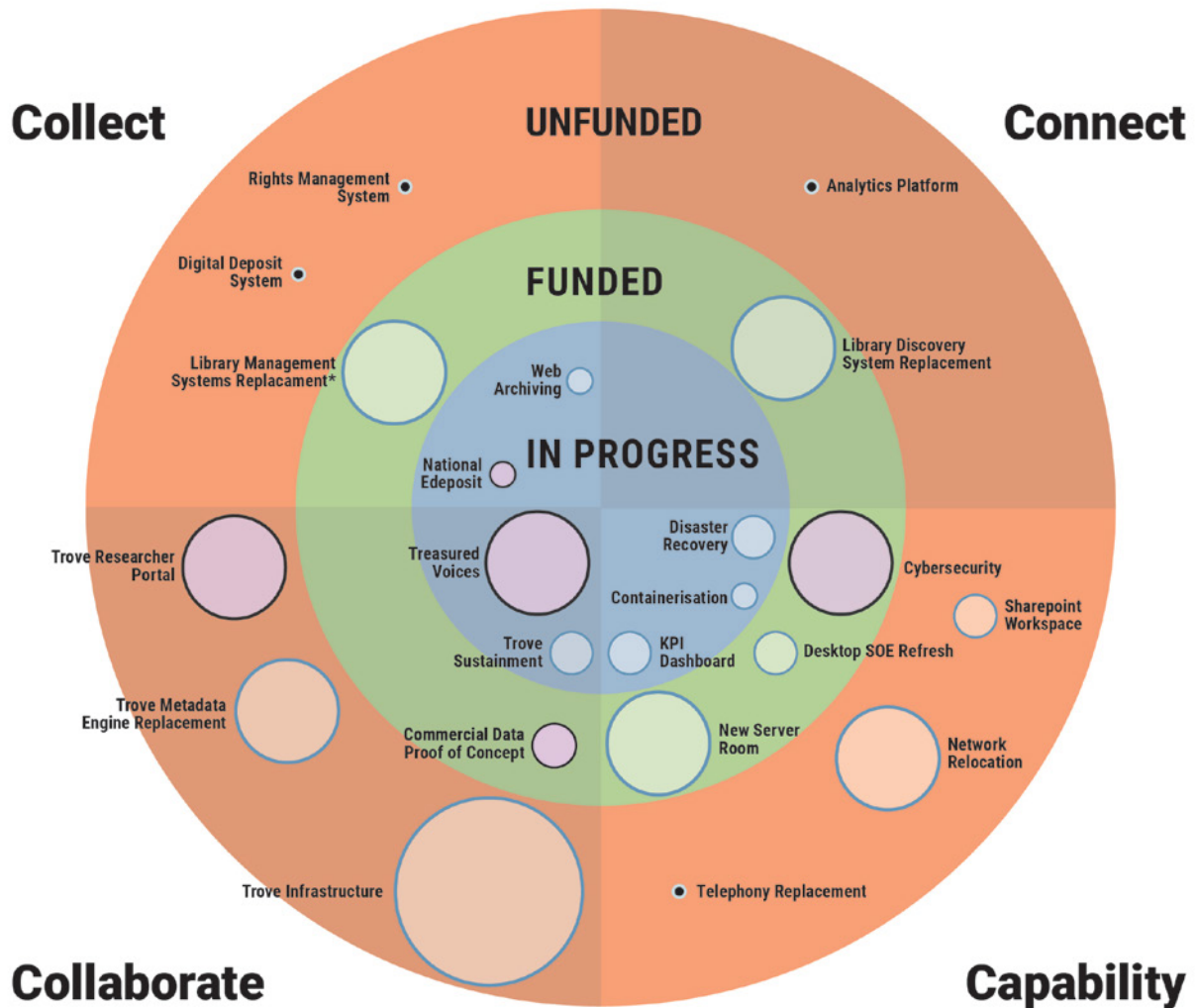
The prevalence of data and analytics and the increasing reliance on data supported decision making will demand a data literate workforce. The digital strategic initiatives to further develop the Library's data capture and analytics capabilities will place more emphasis on fact-based decision making. Library staff will need to increase their literacy in reading, writing, and understanding data in context. Training and literacy development will be a whole-of-Library approach, with Human Resource and business leaders working together to develop training programs and literacy development strategies that go beyond training that only offers proficiency in the use of tools and products. Communities of practice and product teams will facilitate upskilling and information sharing, further supporting the data skills within the organisation.



# Roadmap

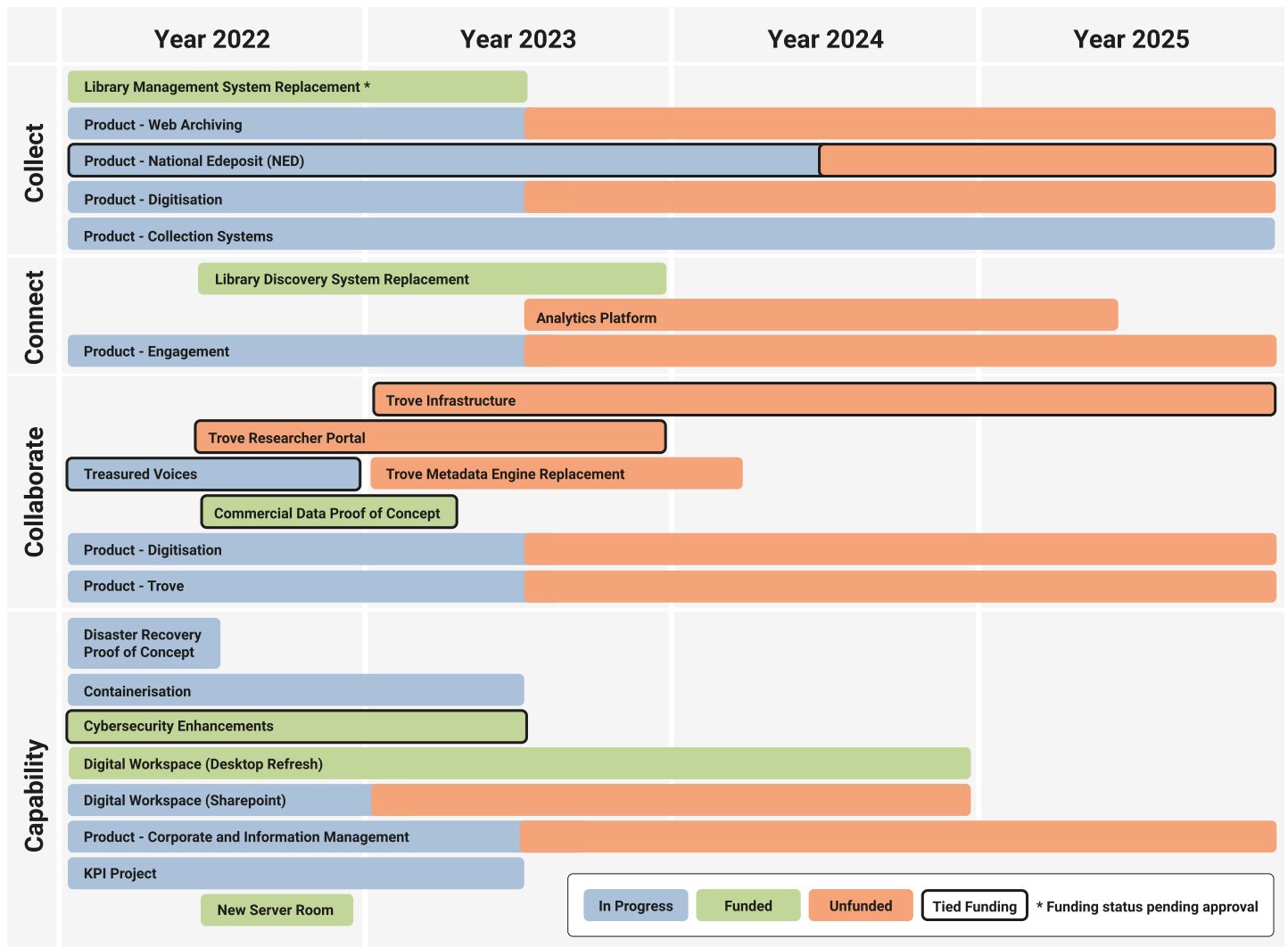
## Investment Cost Comparison

The investment cost comparison radar outlines the relative cost for each of the initiatives.



## Recommended Sequencing

The diagram below shows the proposed sequencing for recommended investment proposals.



## Dependencies and Risks

The Library will increase its focus on addressing risks by strengthening systems and continuing to mature the Library's capabilities. Key risks and dependencies have been identified and inform the Library's Technology Roadmap and approach to building and maintaining digital services.

**Streamlining** workflows requires setting clear business goals, indicators of success and cultural change.

**Collecting new and emerging digital content** requires continuous improvement, iterative development and risk tolerance.

**Sustaining and scaling** requires an agreed enterprise architecture, overcoming technical debt/complexity, clear corporate priorities and an implementation roadmap.

**Collaboration** with NCIs, NSLA and organisations nationally requires national leadership, shared infrastructure and significant ongoing investment

**Protecting** the digital collection and digital services requires continued investment in cybersecurity and infrastructure resilience

**Digital workplace and data capability** requires investment in tools and staff retention/upskilling.

**Product-centric delivery** requires new ways of working and adjusting roles and responsibilities across multiple business functions.

## Glossary

**Artificial Intelligence** – Artificial intelligence is intelligence demonstrated by machines, as opposed to the natural intelligence displayed by animals including humans.

**Cloud** – Cloud computing is the on-demand availability of computer system resources, especially data storage and computing power, without direct active management by the user.

**Containerisation** – Containerisation is operating system-level virtualisation or application-level virtualisation over multiple network resources so that software applications can run in isolated user spaces called containers in any cloud or non-cloud environment, regardless of type or vendor.

**Digital Library** – A digital library, also called an online library, an internet library, a digital repository, or a digital collection is an online database of digital objects that can include text, still images, audio, video, digital documents, or other digital media formats or a library accessible through the internet.

**Library Management System** – A library management system is an enterprise resource planning system for a library, used to track items owned, orders made, bills paid, and patrons who have borrowed.

**Machine Learning** – Machine learning is a field of inquiry devoted to understanding and building methods that 'learn', that is, methods that leverage data to improve performance on some set of tasks. It is seen as a part of artificial intelligence.

**Trove** – Trove is an Australian online library database aggregator and service which includes full text documents, digital images, bibliographic and holdings data of items which are not available digitally, and a free faceted-search engine as a discovery tool.